

Rhynchospora paramorum, Espeletia congestiflora y Iris acutifolia. Suelo arenoso. Hierba arrosetada."

ADDITIONAL NOTES ON THE GENUS CITHAREXYLUM. IX

Harold N. Moldenke

CITHAREXYLUM B. Juss.

Additional bibliography: Spach, Hist. Nat. Veg. Phan. 9: 227. 1840; Janssonius, Mikrogr. Holz. Jav. 754. 1926; Rohweder, Farinos. Veg. Salv. 4 [thesis]. 1954; Rohweder, Abhandl. Geb. Ausl. Univ. Hamb. 61 [C Naturwiss. 13]: 4. 1956; Gibbs, Chemotax. Flow. Pl. 3: 1752-1755. 1974; Moldenke, Phytologia 31: 448-462. 1975; Molina R., Ceiba 19: 95. 1975.

Gibbs (1974) reports saponins and tannins absent from this genus or, in the former chemical, "probably absent".

CITHAREXYLUM BERLANDIERI B. L. Robinson

Additional bibliography: Gibbs, Chemotax. Flow. Pl. 3: 1753 & 1754. 1974; Moldenke, Phytologia 31: 339-341, 394, & 458. 1975.

Gibbs (1974) reports cyanogenesis absent from the leaves of this species, syringin doubtfully absent from its stems, and the HCl/methanol test giving negative results.

Herbarium material has been misidentified and distributed in some herbaria as C. caudatum L.

Additional citations: MEXICO: Tamaulipas: Taylor & Taylor 7250 (N).

CITHAREXYLUM BRACHYANTHUM (A. Gray) A. Gray

Additional bibliography: Moldenke, Phytologia 31: 341-342, 393, & 394. 1975.

The Smith, Peterson, & Tejeda 1121, distributed as C. brachyanthum, is actually C. racemosum Sessé & Moc.

CITHAREXYLUM CAUDATUM L.

Additional & emended bibliography: Little, Woodbury, & Wadsworth, U. S. Dept. Agric. Agric. Handb. 449 [Trees P. R. & Virg. Islas. 2]: 854, 858, 990, & 1000. 1974; Moldenke, Phytologia 31: 343-347, 351, 352, 359, 393, 394, & 459. 1975; Molina R., Ceiba 19: 95. 1975.

Little describes the bark of this species as gray and slightly fissured and reports the vernacular name, "péndula de sierra", from Puerto Rico.

The Taylor & Taylor 7250, distributed as C. caudatum, is actually C. berlandieri B. L. Robinson.

Additional citations: PUERTO RICO: E. L. Little 16315 (W-2750089).

CITHAREXYLUM ELLIPTICUM Sessé & Moc.

Additional bibliography: Gibbs, Chemotax. Flav. Pl. 3: 1752—1755. 1974; Moldenke, Phytologia 31: 353 & 454. 1975.

Gibbs (1974) reports cyanogenesis and leucoanthocyanin absent from the leaves of this species, tannin probably absent, and syringin absent from the stems, while the Ehrlich test gives negative results in the leaves and the Juglone test negative results (but blue fluorescence) in the bark.

CITHAREXYLUM FRUTICOSUM L.

Additional & emended bibliography: Little, Woodbury, & Wadsworth, U. S. Dept. Agric. Handb. 449 [Trees P. R. & Virg. Isls. 2]: 854, 990, & 1000. 1974; Moldenke, Phytologia 31: 448—453, 457, & 459. 1975.

Little and his associates (1974) consider C. pentandrum Vent. as a synonym of C. fruticosum, but, having examined the type collection of Venterat's plant, I cannot agree to this; at least, not to the typical form of C. fruticosum!

The Correll 43327, distributed as C. fruticosum, is actually better placed as var. subvillosum Moldenke.

CITHAREXYLUM FRUTICOSUM var. SUBVILLOSUM Moldenke

Additional bibliography: Moldenke, Phytologia 31: 451—452. 1975.

Correll describes this plant as a large shrub, 2.5 m. tall, and found it growing in coppices, flowering in August. Correll 43327 is said to have had white corollas.

Additional citations: TURKS AND CAICOS ISLANDS: North Caicos: Correll 43327 (N).

CITHAREXYLUM FRUTICOSUM var. VILLOSUM (Jacq.) O. E. Schulz

Additional bibliography: Janssonius, Mikrogr. Holz. Jav. 754. 1926; Moldenke, Phytologia 31: 452—453, 459, & 462. 1975.

CITHAREXYLUM HEXANGULARE Greene.

Additional bibliography: Moldenke, Phytologia 31: 454. 1975; Molina R., Ceiba 19: 95. 1975.

CITHAREXYLUM HIRTELLUM Standl.

Additional bibliography: Moldenke, Phytologia 31: 455—456. 1975; Molina R., Ceiba 19: 95. 1975.

Molina R. (1975) records this species from Honduras, but probably the plant to which he is referring will prove to be C. cooperi Standl.

CITHAREXYLUM KUNTHIANUM Moldenke

Additional bibliography: Moldenke, Phytologia 31: 461—462. 1975.

The Delgado 201, previously cited by me as C. kunthianum, appears, instead, to be C. subflavescens Blake.

CITHAREXYLUM LAETUM Hieron.

Additional bibliography: Moldenke, Phytologia 31: 462. 1975.

It should be noted here that the second Angel's reference in the bibliography of this species (1971) is dated "1970" on its title-page, but was not actually published until 1971.

CITHAREXYLUM LANKESTERI Moldenke

Additional bibliography: Moldenke, Phytologia 13: 295. 1966; Moldenke, Résumé Suppl. 17: 8. 1968; Moldenke, Fifth Summ. 1: 84, 87, 90, & 433 (1971) and 2: 859. 1971; Moldenke in Woodson, Schery, & al., Ann. Mo. Bot. Gard. 60: 93, 101, & 145. 1973; Moldenke, Phytologia 31: 345. 1975.

Recent collectors describe this plant as a small tree, 7.5—15 m. tall, the trunk 10—26.5 cm. in diameter at breast height, the flower racemes [or "spikes"] pendent, and the fruit abundant, green, then turning bright-yellow and finally red when mature, subglobose, fleshy or succulent, slightly flattened laterally, the fruiting-calyx persisting on the old fruit-axis or rachis. Madriz says that the fruit is borne "en racimos colgantes".

The species has been found growing in open meadows with relics of montane forest and in the cloudforest region on mountains, at altitudes of 2000—2800 meters, flowering in March and October and fruiting from January to March and in June. Fosberg describes it as "common in forest filling deep ravine in pasture", while Stern & Chambers tell us that it is "of fairly common occurrence" in Chiriquí, Panama. The vernacular name, "dama", is reported for it. The corollas were "white" on F. R. Fosberg 43269. Gibson (1970) reduces the species to the synonymy of C. mocinnii D. Don.

Material has been misidentified and distributed in some herbaria as C. mocinnii D. Don. On the other hand, the Hatheway & Schnell 1180, distributed as C. lankesteri, is C. mocinnii.

Additional citations: HONDURAS: Morazán: Williams & Molina R. 13703 (Ba). EL SALVADOR: Chalatenango: Tucker 1049 (Ba). COSTA RICA: Heredia: Lems s.n. [Jan. 29, 1964] (N). San José: F. R. Fosberg 43269 (W-2680812); Madriz V. 40 (N). PANAMA: Chiriquí: Stern & Chambers 98 [Yale wood no. 51603] (E-1739983).

CITHAREXYLUM LAURIFOLIUM Hayek

Additional & emended bibliography: Prain, Ind. Kew. Suppl. 4, imp. 1, 49 (1913) and 4, imp. 2, 49. 1958; R. C. Foster, Contrib. Gray Herb. 184: 169. 1958; F. J. Macbr., Field Mus. Publ. Bot. 13 (5): 669, 670, 676—677, & 680. 1960; Moldenke, Phytologia 13: 295. 1966; Moldenke, Fifth Summ. 1: 140, 181, & 429 (1971) and 2: 859. 1971.

Macbride (1960) notes "Corollas lacking in type which resembles C. caudatum L. but leaves not revolute, rachis exceptionally thick and calyx 2-lobed.....; it may be conspecific with C. reticulatum HBK.....to which in manuscript I had referred it; it

may, however, as so often with northern species, be a southern development. Type [is] a shrub about 1 m. tall, the flowers greenish." He cites only Weberbauer 873 from Puno, Peru.

CITHAREXYLUM LEMSI Moldenke, Phytologia 18: 209-210. 1969.

Bibliography: Moldenke, Biol. Abstr. 50: 7999. 1969; Moldenke, Phytologia 18: 209-210. 1969; Hocking, Excerpt. Bot. A. 18: 444. 1971; Moldenke, Fifth Summ. 1: 87 (1971) and 2: 859. 1971; Heslop-Harrison, Ind. Kew. Suppl. 15: 33. 1974.

Citations: COSTA RICA: Guanacaste: Lems 64090302a (N-type).

xCITHAREXYLUM LEONIS Moldenke, Phytologia 31: 25-26. 1975.

Synonymy: Citharexylum caudatum L. x C. tristachyum Turcz. ex Moldenke, Phytologia 31: 394, in syn. 1975. Citharexylum tristachyum Turcz. x C. caudatum L. ex Moldenke, Phytologia 31: 394-395, in syn. 1975.

Bibliography: Moldenke, Phytologia 31: 25-26, 346, 380, & 394. 1975.

The specimen cited below was originally distributed by the collector as C. caudatum L., later re-identified and cited by me as C. tristachyum Turcz. It seems to me now most probable that it represents a natural hybrid between the two species.

Citations: CUBA: Las Villas: León & Clément 6683 (Ha--isotype, N-type).

CITHAREXYLUM LIGISTRINUM Van Houtte

Additional synonymy: Baillonia spicata Bn. ex G. Klein, Handb. Pflanzenanal. 3 (2): 1224. 1932. Lippia lingustrinifolia El-Gazzar & Wats., New Phytol. 69: 483. 1970. Lippia ligustrinifolia Thuret ex El-Gazzar & Wats., New Phytol. 69: 485. 1970. Citharexylum pringlei Van Houtte, in herb.

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 80, 81, & 95. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 50. 1901; Hérissey, Compt. Rend. Acad. Sci. Paris 179: 1419-1420. 1924; Hérissey, Bull. Soc. Chim. Biol. 7: 195-201. 1925; Hérissey, Chem. Abstr. 19: 843. 1925; Hérissey, Journ. Pharm. & Chim., ser. 8, 1: 208-215. 1925; Wangerin in Just, Bot. Jahresber. 53 (2): 645. 1925; Fedde & Schust. in Just, Bot. Jahresber. 53 (1): 1071 [1053]. 1932; G. Klein, Handb. Pflanzenanal. 3 (2): 1224. 1932; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 50. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 80, 81, & 95. 1946; Anon., U. S. Dept. Agr. Bot. Subj. Index 15: 14354 & 14355. 1958; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 50. 1959; Bullock, Taxon 9: 99. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 80, 81, & 95. 1960; Moldenke, Phytologia 13: 295-296. 1966; Farnsworth, Blomster, Quimby, & Schermerh., Lynn Index 6: 263. 1969; El-Gazzar & Wats., New Phytol. 69: 483 & 485. 1970; Moldenke, Fifth Summ. 1: 68, 357, 395, 429-431, & 434-436 (1971) and 2: 548, 557, 558, 859, & 971. 1971; Fletcher in Hillier, Man. Trees & Shrubs, ed. 2, 76 (1972) and imp. ed.,

76. 1972; Rouleau, Taxon Index Vol. 1-20, part 1: 88. 1972; Hegnauer, Chemotax. Pfl. [Chem. Reihe 21]: 661. 1973; Moldenke, Phytologia 27: 363 & 364 (1973) and 30: 181. 1975.

Fletcher (1972) describes a Citharexylum "spicatum Rusby (bessoniamum)" as "Evergreen shrub with leathery, lanceolate leaves. The fragrant, white, Verbena-like flowers are produced in drooping spikes. Only suitable for the mildest gardens. Bolivia." His description applies to C. ligustrinum, of which C. bessoniamum Tod. is a synonym, of Mexico, but C. spicatum Rusby, of Bolivia, is a synonym of Aegiphila spicata (Rusby) Moldenke, not known from cultivation, not agreeing with his description, and with nothing at all to do with Citharexylum ligustrinum.

Recent collectors describe C. ligustrinum as a shrub or tree, 0.5-5 m. tall, mostly small, upright-branched, and evergreen, the leaves lustrous, the flowers with an agreeable odor, and the fruit abundant, orange-green to red, dark-red, or finally blackish. They have found it growing in mesophytic pine and oak woods, in low evergreen forests of primary vegetation, in moist woods, on slopes, in ravines, on obsidian in Pinus patula woods, and along roadsides and trailsides, at altitudes of 1120-2140 meters, flowering in March, July, and August, and fruiting in August, September, and November. Ventura A. refers to it as scarce or even rare in Veracruz, Mexico. Rzedowski says "flores de color rijizo oscuro", but the specimens comprising this collection seen by me are only in fruit, so it seems obvious that he intended to say "frutos" instead of "flores".

The corollas are said to have been "white" on Ventura A. 1181, "moradas" on Ventura A. 2035, and "lavender" on F. G. Meyer 4976 & H. E. Moore Jr. 3251, while Peele refers to them as having the "corolla-lobes white suffused and fringed with violet". Meyers claims that the species is a "Native of Brazil", but this is entirely incorrect: it is endemic to Mexico.

Hérissey (1924, 1925) reports finding baillonioside and baillonigenol in the vegetative parts of this plant.

Material has been misidentified and distributed in some herbaria as C. poeppigii Walp.

Additional citations: MEXICO: Hidalgo: H. E. Moore Jr. 3251 (Ba); Pringle 15608 (Bl-149606, Tu-98519, Tu-134871); J. Rzedowski 23442 (Z), 28651 (Mi); Vela G. 907 (Ip, Up). Puebla: V. E. Rudd 2018 (Mi, W-2574716A); Vela G. 1086 (Ip). Veracruz: Beaman & Alvarez del Castillo 5683 (Ld); Ventura A. 1181 (Mi, Tu-178837), 2033 (Au-294786, Mi, N). CULTIVATED: France: F. G. Meyer 4976 [U. S. Dept. Agr. Pl. Introd. 241352] (Ba). Pennsylvania: Peele 621 [Longwood Gard. acc. 58421] (Ba).

CITHAREXYLUM LUCIDUM Schlecht. & Cham.

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 549 & 550. 1893; A. R. Northrop in J. I. Northrop, Naturalist in Bahamas 180 & 204. 1910; Jacks. in Hook.

f. & Jacks., Ind. Kew., imp. 2, 1: 549 & 550 (1946) and imp. 3, 1: 549 & 550. 1960; Moldenke, Phytologia 14: 507. 1967; Moldenke, Résumé Suppl. 16: 2. 1968; Moldenke, Fifth Summ. 1: 68, 427, 429, 432, 434, 435, & 474 (1971) and 2: 859. 1971; Moldenke, Phytologia 31: 359. 1975.

The C. lucidum described by Northrop (1910) is certainly not the present species going under that name. Most probably it is the C. lucidum of Grisebach to which she is here referring, in part, at least, and this is now regarded as a synonym of C. spinosum L. The geographic distribution which she cites, however, is probably a combination of the ranges of the true C. lucidum Schlecht. & Cham. and of C. caudatum L., C. fruticosum L., and C. spinosum L.

Recent collectors describe the true C. lucidum as a shrub or "shrubby plant", 5 m. tall, or a tree, 6 m. tall, with orange fruit and white flowers, and have encountered it on the sides of arroyos in mixed forests and in primary vegetation in low evergreen forests, at 800 m. altitude, flowering in December and January and fruiting in January and February. Ventura A. refers to it as "scarce".

Material has been misidentified and distributed in some herbaria as C. fruticosum L.

Additional citations: MEXICO: Chiapas: F. Miranda 6318 (W-2508472). Veracruz: Beaman 5409 (Ld); Beaman & Alvarez del Castillo 5799 (Z); Ventura A. 2987 (Au-303953, Mi).

CITHAREXYLUM LYCIOIDES D. Don

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 550. 1893; Prain, Ind. Kew. Suppl. 4, imp. 1, 49. 1913; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 550. 1946; Prain, Ind. Kew. Suppl. 4, imp. 2, 49. 1958; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 550. 1960; Moldenke, Phytologia 14: 507. 1967; Moldenke, Fifth Summ. 1: 68, 429, & 435 (1971) and 2: 859. 1971.

Recent collectors describe this as a shrub, 1--2.5 m. tall, and have encountered it on hillslopes, on igneous slopes with Yucca and Myrtillocactus geometrizans, in spiny matorral, and, according to Gonzalez Quintero, in "matorral crassicaule alterado" and on "ladera caliza con vegetación de Flourensia resinosa", at altitudes of 1900--2900 meters, flowering in April, and fruiting in June, July, and September.

Additional citations: MEXICO: Hidalgo: Diaz M. 137 (Mi, N); Gómez Pampa 961 (Mi); González Quintero 1099 (Ip), 2338 (Ip), 2600 (Ip, Mi), 2725 (Mi), 3525 (Au-256456, Ip, Mi, Ws), s.n. [29.IV. 1965] (Ws).

CITHAREXYLUM MACRADENIUM Greene.

Additional & emended bibliography: Prain, Ind. Kew. Suppl. 4, imp. 1, 49 (1913) and 4, imp. 2, 49. 1958; Moldenke, Phytologia

13: 296. 1966; Moldenke, Résumé Suppl. 16: 4. 1968; Gibson, Fieldiana Bot. 24 (9): 185. 1970; Moldenke, Fifth Summ. 1: 87, 90, 432, 434, & 474 (1971) and 2: 859. 1971; Moldenke in Woodson, Schery, & al., Ann. Mo. Bot. Gard. 60: 93, 98, & 145. 1973; Moldenke, Phytologia 31: 345, 346, 352, & 379. 1975.

Recent collectors describe this species as a large tree, 6—20 m. tall, the trunk 20 cm. in diameter at breast height, the stems square, and the fruit pendulous, orange or bright-orange, "china-white when mature" (according to Dwyer and his associates), at altitudes of 1000—2000 meters, flowering from July to September, and fruiting in March, August, and November. Wilbur & Stone refer to it as "occasional".

The corollas are said to have been "white" on Dwyer & Hayden 7077 and A. Jiménez 933, but on Croat & Porter 15630 it is merely stated that the "petals [are] white". The fruits are sometimes erroneously referred to as "berries" instead of drupes.

The Burger 3842 and Lent 2236, distributed as *C. macradenium*, are actually *C. donnell-smithii* Greene.

Additional citations: COSTA RICA: Alajuela: A. Jiménez 933 (N). Cartago: Lems 6409110303 [5158] (N); Wilbur & Stone 10181 (Mi, N). Puntarenas: Burger & Gentry 8800 (N). PANAMA: Chiriquí: Croat & Porter 15630 (N); Dwyer & Hayden 7077 (Z), 7709 (Ld). Cooclé: P. H. Allen 2784 (E-1213499). LOCALITY OF COLLECTION UNDETERMINED: Collector undetermined 9868 (N).

CITHAREXYLUM MACROCHLAMYS Pittier

Additional bibliography: Moldenke, Phytologia 6: 460—461. 1959; Moldenke, Résumé Suppl. 16: 4. 1968; Moldenke, Fifth Summ. 1: 90, 115, & 434 (1971) and 2: 860. 1971; Moldenke in Woodson, Schery, & al., Ann. Mo. Bot. Gard. 60: 93—94 & 145. 1973.

Duke refers to this plant as a tree, leaning "over a river", the trunk 10 cm. in diameter at breast height, and the branches arching. The corollas are said to have been "white" on Duke 13550.

The Romero Castañeda 1141, distributed as *C. macrochlamys*, is actually *C. mirifolium* Moldenke.

Additional citations: PANAMA: Darién: J. A. Duke 13550 (Oh, W-2629869, Z).

CITHAREXYLUM MACROPHYLLUM Poir.

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 550 (1893), imp. 2, 1: 550 (1946), and imp. 3, 1: 550. 1960; Veillon, Revist. Forest. Venez. 5: 67. 1962; Moldenke, Phytologia 14: 507. 1967; Moldenke, Résumé Suppl. 16: 5. 1968; Rollet, Adansonia, ser. 2, 8: 542 & 549. 1968; J. A. Steyermark, Act. Bot. Venez. 3: 72, 76, & 156. 1968; Moldenke, Fifth Summ. 1: 115, 122, 129, 131, 133, & 148 (1971) and 2: 860. 1971; Roth & Mérida de Bifano, Act. Biol. Venez. 7: 131. 1971; Moldenke in Woodson, Schery, & al., Ann. Mo. Bot. Gard. 60: 94 & 145. 1973; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 15: 17—

19. 1975.

Recent collectors describe this plant as a tree, to 22 m. tall, with curved bole, slightly fluted at the base, the trunk diameter 10–15 cm. [determined by measurement of 115 trees], the bark rather smooth, grayish-brown, very slightly fissured, the leaves thinly chartaceous, very slightly scabrid, shining and medium-green above, pale-green and dull beneath, the calyx pale-green, and the corollas [on Breteler 5039] pale-yellow. They have found it growing in primary forests, at 320–1200 meters altitude, flowering in March. The name, "totumillo", is recorded for it. Wood vouchers have been taken from Breteler 5039 [from a height of 0.3–1.1 m. from the base of the trunk] and from Murça Pires 51847.

López-Palacios (1975) comments that "Según registros, parece ser que el C. macrophyllum es uno de los C. que alcanza mayor parte, si no el mayor, en Venezuela: hasta 30 m. El material de herbario en flor es fácilmente confundible con el C. poeppigii, y aun los mismos especialistas y botánicos de nota han caído en esta confusión.... Sin embargo, cuando están en fruto los dos taxa son inconfundibles: los frutos maduros del C. poeppigii [sic] son rojos, muy llamativos, vistosos y ornamentales, no llegan a 1 cm. de diámetro, son de ápice redondeado y secan en color café o marrón; los del C. macrophyllum son amarillo verdosos, hasta 2 cm. de diámetro, apiculados en el ápice, y secan en negro o en castaño claro. Tales frutos son más fáciles de confundir con los del C. venezuelense. Sin embargo, estos dos últimos taxa se diferencian claramente por el indumento del envés de sus hojas: pubescent en el venezuelense, glabro o glabrescente en el macrophyllum.... El Dr. Moldenke anota 'que las glándulas basales craterimorfas son muy diferentes de las discoïdes aplanasadas de otras especies del género', pero esta característica no debe ser tan firme, pues, como hemos visto, las confusiones son frecuentes. He dejado sin considerar a Rodríguez & Pérez 2644 (MER), Río San Pedro, 200 Km. al S. de Caicara. Edo. Bolívar, como specimen denuo recognoscendum, por tratarse de material estéril y muy incierto."

Additional citations: VENEZUELA: Bolívar: Breteler 5039 (W-2583466A, W-2583467A). BRAZIL: Fará: Murça Pires 51847 (W-2548597). Roraima: Prance, Forero, Pena, & Ramos 4370 (Ld, N, S).

CITHAREXYLUM MATUDEAE Moldenke

Additional bibliography: Hocking, Excerpt. Bot. A.7: 454. 1964; Moldenke, Phytologia 13: 297. 1966; G. Taylor, Ind. Kew. Suppl. 14: 34. 1970; Moldenke, Fifth Summ. 1: 68 (1971) and 2: 860. 1971.

CITHAREXYLUM MEXICANUM Moldenke

Additional bibliography: Moldenke, Phytologia 6: 464–465. 1959; Moldenke, Fifth Summ. 1: 68 (1971) and 2: 860. 1971.

CITHAREXYLUM MICROPHYLLUM (P. DC.) O. E. Schulz

Additional bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 1206 (1893) and imp. 1, 2: 275. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 116 (1901) and 1, imp. 2, 116. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 1206 (1946) and imp. 2, 2: 275. 1946; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 116. 1959; Moldenke, Phytologia 6: 465—467. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 1206 (1960) and imp. 3, 2: 275. 1960; Moldenke, Fifth Summ. 1: 102 & 471 (1971) and 2: 531 & 860. 1971.

CITHAREXYLUM MIRIFOLIUM Moldenke

Additional bibliography: Moldenke, Phytologia 13: 297—298. 1966; Moldenke, Résumé Suppl. 16: 5. 1968; Moldenke, Fifth Summ. 1: 115 & 122 (1971) and 2: 860. 1971; Moldenke, Phytologia 28: 436 (1974) and 31: 382 & 457. 1975; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 15: 14 & 18—19. 1975.

Recent collectors describe this plant as a shrub, 3—4 m. tall, or a tree, 12 m. tall, the bark pale-chocolate, the petioles salmon-color, the flowers fragrant, and the calyx green. The corollas on Romero-Castañeda 1141 are said to have been white when fresh. The species has been found growing in quebradas, at altitudes of 600—2600 meters, flowering in July, August, and December, and fruiting in December.

Ruiz-Terán and his associates describe the species as an "Árbol [or] arbolito inerme, perennifolio, 4—8 m. Tronco irregularmente cilíndrico, 20—25 cm de diámetro. Corteza pardo negruzca, fisurada. Madera fresca de color amarillo pálido luego de exposición al aire. Hojas verde oscuras, lucientes por la haz, más claras por el envés. Corola blanco verdusula por fuera, blanca por dentro, con tomento crespo, blanco, en la garganta y 1/2 a 2/3 inferiores de los lobulos, estos con ápice rojo vinoso en algunas flores." Of their no. 6740 they note "muestra de control, topotipo". The vernacular name, "palamero", is recorded.

Material has been misidentified and distributed in some herbaria as *C. macrochlamys* Pittier. On the other hand, the Breteler 4314, cited below, is regarded by López-Palacios as xC. hybridum Moldenke. This very careful contemporary worker asserts that in *C. mirifolium* the leaves are completely glabrous beneath, while in xC. hybridum they have pubescence in the axils of the larger veins. He also asserts that *C. mirifolium* is an upland species, while xC. hybridum (like its supposed parents) is only found in the lowlands. Breteler describes his plant as a tree, 12 m. tall, the trunk 25—30 cm. in diameter at breast height, the bark fissured, the leaves papery or thin-coriaceous, smooth, glossy and medium-green above, paler and dull beneath, the fruit subglobose-ellipsoid, laterally compressed, smooth, glossy, pale-green, brownish-tinged [probably immature]. He encountered it at an altitude of 600 meters, fruiting in December.

López-Palacios annotated the United States National Herbarium specimen in 1972 as "Cith. aff. fruticosum L. - probabiliter sp. nov."

In his 1975 work, under C. mirifolium, he comments that "En la descripción que hago para la Flora, complemento la del Dr. Moldenke.....con datos nuevos, como los de dimensiones y características florales, basados en observaciones personales y en colecciones hechas conjuntamente con el Prof. Ruiz-Terán. El Dr. Moldenke consideraba la especie sin glándulas, cuya presencia fue observada por nosotros (Ruiz-Terán y yo), al tiempo que observamos también la denticulación de las hojas jóvenes."

Commenting on my statement that C. mirifolium is obviously closely related to C. fruticosum L., he says: "Yo la considero mucho más afín a C. reticulatum HBK al que se asemeja muchísimo en los ejemplares de herbario y del que apenas parece diferir en pequeños detalles. En el Vth Sumary [sic]....se citan como localidades para este taxón los Edos. Falcón, Mérida y Trujillo. La cita de Falcón estaba basada en Breteler 4313, excluido de aquí por las razones que ya expusieron en su debido lugar; también mis primeras dudas a este respecto se basaron en razones ecológicas: si el C. mirifolium, especie paramuna, pudiera prosperar en las zonas bajas de Falcón."

The "Falcón", Venezuela, listed by me in my Fifth Summary (1971) for C. mirifolium was indeed based on the above-mentioned Breteler collection and is therefore erroneous. Citharexylum mirifolium is not known from that state of Venezuela as of now.

Additional citations: COLOMBIA: Bolívar: Romero Castañeda 1141 (W-2104708). VENEZUELA: Mérida: Ruiz-Terán & López-Palacios 661 (N); Ruiz-Terán, López-Palacios, & Rodriguez 6740 (N). Trujillo: Aristeguieta 3690 (N); Ruiz-Terán & López-Palacios 7452 (Ld).

CITHAREXYLUM MOCINNI D. Don

Additional & emended synonymy: Citharexylum tomentosum Sessé & Moc. ex D. Don, Edinb. New Philos. Journ. 11 (Jan.-Mar.): 238, in syn. 1831 [not C. tomentosum Humb. & Bonpl., 1821, nor H.B.K., 1817, nor Klotzsch & Karst., 1940, nor Kunth, 1847, nor Poir., 1811]. Citharexylum mocinnii D. Don ex Moldenke, Alph. List Invalid Names 58, in syn. 1942; Gibson, Fieldiana Bot. 24 (9): 184 & 190. 1970.

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 550 (1893), imp. 2, 1: 550 (1946), and imp. 3, 1: 550. 1960; Moldenke, Phytologia 14: 507-508. 1967; Moldenke, Résumé Suppl. 15: 3 (1968) and 16: 3. 1968; Gibson, Fieldiana Bot. 24 (9): 184 & 190. 1970; Moldenke, Fifth Summ. 1: 68, 83, 85, 87, 430, 434, 436, & 437 (1971) and 2: 860. 1971; Farnsworth, Pharmacog. Titles 7 (10): v. 1972; Fong, Trojánskova, Trojánek, & Farnsworth, Lloydia 39: 147. 1972; Moldenke, Phytologia 23: 415 & 428 (1972) and 31: 462. 1975; Farnsworth, Pharmacog. Titles 7, Cum. Gen. Ind. [29]. 1975; Molina R., Ceiba 19: 95. 1975.

It should be noted here that Gibson (1970) feels that C. lan-

kesteri Moldenke should be added to the synonymy of C. mocinni.

Recent collectors describe C. mocinni as a slender tree, 4-30 m. tall, or an evergreen erect shrub, 2-6 m. tall, the trunk 15-25 cm. in diameter at breast height, the flowers "verbenaceous", and the fruit "on long dangling spikes", orange or yellow-orange, black in drying. They have found it growing in pinewoods, oak woods, cloud-forests, and primary vegetation of deciduous woods, in forests and cutover cloud-forests, in hillside matorral, on flat ground with pinewoods vegetation, along trails, at the foot of cascades, on hillsides with oak or with Liquidambar woods, on steep slopes with Quercus, Pinus, Liquidambar, Podocarpus, and Magnolia, or on steep heavily wooded slopes with Taxodium, Erythrina, Piper, and Liquidambar, at altitudes of 800-2350 meters, flowering from January to April and August to October, and fruiting from January to April as well as in June and August.

Hatheway & Schnell describe it as "common in open oak forests of the Lower Montane Moist Forest type". Ventura A. refers to it as "scarce", "very scarce", or "rare" in Veracruz, while Hinton refers to it as "rare" in México state. The corollas are said to have been "white" on J. Rzedowski 22113 and Ton 3555, "whitish" on Ventura A. 2729, "cream-color" on Weaver, Foster, & Kennedy 1717, and "verduzca" on Ventura A. 4820.

Material has been misidentified and distributed in some herbaria as C. lankesteri Moldenke, but, on the other hand, the Williams & Molina R. 13703, distributed as C. mocinni, is actually C. lankesteri.

Additional citations: MEXICO: Chiapas: E. W. Lathrop 6783 (Du-586091); Stone & Broome 2821 (Mi, N); Ton 2576 (Mi), 2826 (Mi), 3555 (Mi, Mu), 3598 (Z), 3913 (Mi). Jalisco: R. McVaugh 23221 (Ip). México: Hinton 5393 (Se-120068, Tu-112041), 8744 (Se-120067, Tu-84914, Tu-98518, Tu-112040); J. Rzedowski 22113 (Ip, Mi, Mi). Nayarit: R. McVaugh 12092 (N). Veracruz: Dorantes Lopez 550 (Ld); Ventura A. 619 (Mi, Tu-178148, Tu-180487, Ws), 2443 (N), 2729 (Au-303174, Mi, N), 3443 (Mi), 4820 (Mi); Weaver, Foster, & Kennedy 1717 (Mi). NICARAGUA: Jinotega: Molina R. 22923 (N, Ws). Matagalpa: Williams, Molina R., & Williams 23630 (N); Williams, Molina R., Williams, Gibson, & Laskowski 27756 (N). COSTA RICA: Cartago: Hatheway & Schnell 1480 (W-2512767).

CITHAREXYLUM MOCINNI var. LONGIBRACTEOLATUM Moldenke

Additional & emended synonymy: Citharexylum mocinnii var. longibracteatum Moldenke, Phytologia 6: 471, in syn. 1959; Gibson, Fieldiana Bot. 24 (9): 184 & 190. 1970.

Additional bibliography: Moldenke, Phytologia 13: 298. 1966; Gibson, Fieldiana Bot. 25 (9): 184 & 190. 1970; Moldenke, Fifth Summ. 1: 68, 78, 83, & 434 (1971) and 2: 860. 1971; Moldenke, Phytologia 23: 428. 1972; Molina R., Ceiba 19: 95. 1975.

CITHAREXYLUM MONTANUM Moldenke

Additional bibliography: Moldenke, Phytologia 14: 508. 1967; Moldenke, Fifth Summ. 1: 115, 135, & 357 (1971) and 2: 860. 1971.

The Barclay, Juaibioy, & Gama 3580, distributed as C. montanum, actually is the closely related C. subflavescens Blake.

CITHAREXYLUM MONTANUM var. CHIMBORAZENSE Moldenke

Additional bibliography: Moldenke, Phytologia 13: 298. 1966; Moldenke, Fifth Summ. 1: 135 (1971) and 2: 860. 1971.

CITHAREXYLUM MONTEVIDENSE (Spreng.) Moldenke

Additional & emended synonymy: Citharexylum montevidense Spreng. ex Tomlinson, Journ. Arnold Arb. 54: 120. 1973.

Cytharexylon barbinerve Cham. ex Gilbert, Enum. Pl. Montev. 45.

1873. Cytherexylon montevidense Martinez-Crovetto, Bonplandia 1: 196. 1963. Cytherexylon montevidense (Spr.) Moldenke, Phytologia 26: 372, in syn. 1973.

Additional & emended bibliography: D. Dietr., Syn. Pl. 1: 630. 1839; Vesque, Ann. Sci. Nat. Paris, ser. 7, 1: 336 & 341-343. 1885; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 549 & 823. 1893; Venturi & Lillo, Contrib. Conoc. Arb. Argent. 104. 1910; Anon., Ind. Sem. Of. Canje Jard. Bot. Montev. 3. 1935; Fedde & Schust. in Just, Bot. Jahressber. 60 (2): 571. 1941; Santos Biloni, Suelo Argent. 3: 663 & 679. 1944; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 549 & 823. 1946; Cabrera, Man. Fl. Alred. Buenos Aires 390 & 391, fig. 145. 1953; Anon., U. S. Dept. Agr. Bot. Subj. Index 15: 14355. 1958; Cain, Man. Veg. Anal., imp. 1, 226. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 549 & 823. 1960; Martinez-Crovetto, Bonplandia 1: 196. 1963; Angely, Fl. Anal. Paran., ed. 1, 578. 1965; Troncoso in Cabrera, Fl. Prov. Buenos Aires 5: 148 & 149, fig. 50. 1965; Moldenke, Phytologia 14: 508. 1967; Moldenke, Résumé Suppl. 17: 9. 1968; Reitz, Sellowia 22: 34. 1970; Angely, Fl. Anal. & Fitogeogr. S. Paulo, ed. 1, 4: 830 & iv. 1971; Cain, Man. Veg. Anal., imp. 2, 226. 1971; Moldenke, Fifth Summ. 1: 148, 185, 188, 195, 357, 426, 428, 430, 431, 434, 473, & 474 (1971) and 2: 491, 617, & 860. 1971; Anon., Biol. Abstr. 56 (8): B.A.S.I.C. S.53. 1973; K. E. Clausen, Biol. Abstr. 56: 4183. 1973; Tomlinson, Journ. Arnold Arb. 54: 120. 1973; Farnsworth, Pharmacog. Titles 9 (3): vi. 1974; R. D. Gibbs, Chemotax. Flow. Pl. 4: 1753-1755 & 2079. 1974; Moldenke, Phytologia 28: 148. 1974; Troncoso, Darwiniana 18: 373-375, 377, 378, & 408, fig. 26. 1974; Moldenke, Phytologia 31: 458. 1975.

Additional illustrations: Santos Biloni, Suelo Argent. 3: 663 & 679. 1944; Cabrera, Man. Fl. Alred. Buenos Aires 390, fig. 145. 1953; Troncoso in Cabrera, Fl. Prov. Buenos Aires 5: 149, fig. 50. 1965; Troncoso, Darwiniana 18: [364], fig. 26. 1974.

Tomlinson (1973) points out that dioecism was reported for this species by Arechavaleta in 1902. It has since also been described for C. fruticosum L. Venturi & Lillo (1910) report the vernacular names, "aguafí-guazí", "tarumá con espinas", and "taruman espinudo",

for this species in Argentina and describe it as an "Arbol abundante no muy alto pero á veces grueso que vive en las isletas de bosques en el interior de Corrientes. La madera es blanca no muy blanda. Es poco utilizado."

The Angely (1971) reference in the bibliography of this species is sometimes cited as "1970", which is the title-page date, but the work was not actually issued until 1971.

Troncoso (1965) gives the distribution of this species as "Sur del Brasil, Paraguay, Uruguay y NE. argentino hasta las selvas en galería del Delta y ribera platense; isla de Martín García. Cultivado en calles, parques y plazas como ornamental." She reports additional vernacular names for it in Argentina: "blanco grande" and "coronillo colorado" and cites Cabrera 1988 & 6359 in the San Isidro herbarium. Cain (1959) describes the species as a mesophanerophyte microphyll.

Recent collectors describe the plant as a tree, 3-4 m. tall, with few spines and fragrant flowers, and have encountered it at the edges of woods, flowering in May and June, and fruiting in December. The corollas are described as having been "cream" colored on Chisholm s.n. and "yellow" on Clos 7357, while on Bracelin 1327 they are said to have been "in bud 612 Carrot Red, open to flower 606/2 Chinese Yellow, RHS [Royal Horticultural Society] Colour Chart 1938-42".

Gibbs (1974) has found cyanogenesis, leucoanthocyanin, and syringin absent from the leaves and stems of this species and reports the Ehrlich test, as well as the HCl/methanol test, gave negative results in the leaves.

Material of C. montevidense has been misidentified and distributed in some herbaria as C. spinosum L. On the other hand, the R. Moran 2775, distributed as C. montevidense, is actually C. ilicifolium H.B.K.

Additional citations: BRAZIL: Rio Grande do Sul: Machado s.n. [Herb. Anchieta 20702] (B); Rambo 8313 (B), 44323 (B); Sehnem 6206 (B). URUGUAY: H. H. Bartlett 21264 (N), 21330 (N). ARGENTINA: Corrientes: Krapovickas, Cristóbal, Arbo, Marufak, Marufak, & Irigoyen 16851 (Ld, Ws). CULTIVATED: Argentina: Clos 7357 [Herb. Lab. Bot. Spegazz. 71483] (Ba). California: Bracelin 1327 (Ba); Chisholm s.n. [3 June 1952] (Ba); Jerabek s.n. [Huntington Gardens, June 1945] (Sd-36517). Egypt: Din s.n. [Spring 1868] (Gz); Mahdi s.n. [11.5.1968] (Gz, Gz, Gz).

CITHAREXYLUM MUCRONATUM Fourn. & Moldenke

Additional bibliography: Moldenke, Phytologia 6: 480-481. 1959; Moldenke, Fifth Summ. 1: 85 & 430 (1971) and 2: 792 & 860. 1971; Moldenke, Phytologia 31: 346. 1975.

Bunting & Licht describe this plant as a several-trunked tree, to 4 m. tall, the bark light-gray, the leaves light-green, and the corollas whitish. They found it in flower in April and report the local vernacular name, "panchil". They regard it as C.

caudatum L., a species to which it is certainly closely related and the Central American representatives of which need more careful re-examination and comparison with typical West Indian material. It is very possible that C. mucronatum should be reduced to varietal or form rank under C. caudatum.

Additional citations: NICARAGUA: Chontales: Bunting & Licht 1120 (N, W-2542904).

CITHAREXYLUM MYRIANTHUM Cham.

Additional synonymy: Cytarexylum myrianthum Cham. ex Reitz, Rodriguesia 13: 271, sphalm. 1950. Cytharexylum myrianthum Cham. ex Reitz, Rodriguesia 13: 273 & 285, sphalm. 1950. Cytarexylum myrianthum Cham. ex Souza Sobrinho, Insula 6: 7, sphalm. 1972. Cytarexulum myrianthum Cham. ex Souza Sobrinho, Insula 6: 7, sphalm. 1972.

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 549. 1893; Briq. in Chod. & Hassl., Bull. Herb. Boiss., ser. 2, 4: 1166. 1904; Briq. in Chod. & Hassl., Pl. Hassler. 2: 502. 1904; T. Peckolt, Bericht. Deutsch. Pharm. Gesel. 14: 475. 1904; Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 571. 1941; Augusto, Fl. Rio Grande do Sul 229 & 236. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 549. 1946; Reitz, Anais Bot. Herb. Barb. Rodr. 2: 28, 37, & 60. 1950; Reitz, Rodriguezia 13: 271, 273, & 285. 1950; Veloso & Klein, Sellowia 8: betw. 150 & 151, betw. 156 & 157, 182, & 220 (1957) and 10: betw. 76 & 77, 99, & 105. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 549. 1960; Veloso & Klein, Sellowia 15: 102 & 107. 1963; Reitz & Klein, Sellowia 16: 44. 1964; Angely, Fl. Anal. Paran., ed. 1, 578. 1965; Moldenke, Phytologia 14: 508. 1967; Hyland, Pl. Invent. U. S. Dept. Agr. 172: 234. 1968; Veloso & Klein, Sellowia 20: 83 & 122. 1968; Moldenke, Résumé Suppl. 16: 20. 1968; Reitz, Sellowia 22: 34. 1970; Angely, Fl. Anal. & Fitogeogr. Est. S. Paulo, ed. 1, 4: 830 & iv. 1971; Moldenke, Fifth Summ. 1: 148, 185, 195, 357, 428-430, 432, 434-436, & 474 (1971) and 2: 860. 1971; Souza Sobrinho, Insula 6: 7 & 17. 1972; Moldenke, Phytologia 25: 230 & 238. 1973; Troncoso, Darwiniana 18: 373, 375, & 408. 1974; Moldenke, Phytologia 31: 338. 1975.

Recent collectors describe this species as a tree or treelet, 6-12 m. tall, the trunk 12-25 cm. in diameter, the bark smoothish, gray-brown, and the flowers fragrant. They have found it growing in arroyos, in secondary woods, at the edges of woods, in virgin rainforests, and in "mata planicie litoranea", as well as at the edges of rivers, at altitudes of about 20 meters, flowering in December and fruiting in January. Souza Sobrinho (1972) reports it from Santa Catarina Island, Brazil. The corollas are said to have been "white" on Hatschbach 18121 & 35582, Reitz 1768, and Woolston 610, "whitish" on Hatschbach 25760, and "clear-yellow" on Krapovickas & al. 16894. The vernacular name, "sáramoroti" is reported for it.

Hyland (1968) records the species as cultivated in Maryland from seed collected by Edgar Ribas in Brazil and introduced as

no. 300615 in the United States Plant Introduction series.

Peckolt (1904) records the vernacular name, "ratimbó", and notes the local medicinal use of the "bitter schmeckende Wurzelrinde des Baumes in Pulver oder in Tinktur als Tonikum".

The Angely (1971) reference cited in the bibliography above is sometimes listed as "1970", the title-page date, but the work actually was not issued until 1971. It should also be noted here that the cumulative index to *Sellowia* volumes published to date refers to a mention of this species on page 84 of volume 2, but it is not mentioned on that page as far as I am able to see.

Material of *C. myrianthum* has been misidentified and distributed in some herbaria as *C. cinereum* L. or *C. solanaceum* Cham. On the other hand, the Sehnem 2206, distributed as *C. myrianthum*, is actually *C. montevidense* (Spreng.) Moldenke.

Additional citations: BRAZIL: Guanabara: Duarte 1005 [Herb. Jard. Bot. Rio Jan. 61692] (Oa). Paraná: Hatschbach 13623 (Ld, W-2564854), 18121 (Ft, W-2536537), 25760 (N), 35582 (Ld). Rio Grande do Sul: O. Camargo 1138 [Herb. Anchieta 59803] (B), 2541 [Herb. Anchieta 61717] (B), 2603 [Herb. Anchieta 61792] (B); Rambo 1079 (B). Santa Catarina: Reitz 1768 (N). São Paulo: Hunger Filho s.n. [Acut-Sept.-Oct. 1928] (P); Löfgren s.n. [Herb. Com. Geogr. & Geol. S. Paulo 4219; Herb. Inst. Biol. S. Paulo 15628] (P). PARAGUAY: Woolston 610 (N). ARGENTINA: Corrientes: Krapovickas, Cristóbal, Arbo, Maruñak, Maruñak, & Irigoyen 16894 (Ld). Formosa: I. Morel 4397 (N).

CITHAREXYLUM OBTUSIFOLIUM Kuhlmann

Additional bibliography: Moldenke, Phytologia 6: 487. 1959; Moldenke, Fifth Summ. 1: 148 & 474 (1971) and 2: 860. 1971.

CITHAREXYLUM OLEINUM (Benth.) Moldenke

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 477 (1894) and imp. 1, 2: 848 (1895), imp. 2, 2: 477 & 848 (1946), and imp. 3, 2: 477 & 848. 1960; Moldenke, Phytologia 14: 508. 1967; Moldenke, Fifth Summ. 1: 68, 357, 433, & 435 (1971) and 2: 595, 619, & 860. 1971; Moldenke, Phytologia 23: 414 (1972) and 31: 335. 1975.

Recent collectors describe this species as a small shrub, 1-2.5 m. tall, with scentless flowers, and have encountered it in chaparral vegetation, in xerophilous matorral or *Flourensia resinosa* matorral, on *Juniperus flaccida* slopes, in crevices of lime rocks, and in pinewoods, pine-oak woods, or pine-juniper woods, at altitudes of 1900-2800 meters, flowering from April to June and in August, and fruiting in February, May, and August. McVaugh reports it as "abundant on north slopes of barrancas in the lower limit of the pinyon-juniper belt"; Cruz Cisneiros found it on "ladera caliza con vegetación de matorral xerófila", while Gonzalez Quintero found it on "ladera caliza con vegetación espaciada" and in "encinar arbustivo" and on "cerro calizo". The corollas are said to have been "white" on McVaugh 10360 and on

Moore & Wood 4365.

Additional citations: MEXICO: Hidalgo: Gómez Quintero 2076 (Au-253679, Ip, Mi), 2389 (Ip, Mi), 2445 (Ip, Mi), 2515 (Ip, Mi, Ws), 2856 (Au-249553, Ip), 3558 (Ip, Mi), 3590 (Ip); Moore & Wood 4365 (Ba, W-2594870). Oaxaca: Cruz Cisneros 2136 (Au-303115, Mi, N), 2644 (Mi). Querétaro: R. McVaugh 10360 (Au-237055, N). San Luis Potosí: J. Rzedowski 6655 (Au-237991). Tamaulipas: González Quintero 3824 (Mi).

CITHAREXYLUM OVATIFOLIUM Greem.

Additional bibliography: Moldenke, Phytologia 13: 301. 1966; Moldenke, Fifth Summ. 1: 68 (1971) and 2: 860. 1971.

Rzedowski describes this plant as a shrub, 2 m. tall, and found it growing in woods of Quercus, Pinus, Abies, Clethra, and Ternstroemia, at an altitude of 2400 meters, fruiting in April.

The González Quintero 474, distributed as C. ovatifolium, is actually C. hidalgense Moldenke.

Additional citations: MEXICO: Morelos: J. Rzedowski 22165 (Ip); Pringle 6540 (Ms-30923-isotype).

CITHAREXYLUM PACHYPHYLLUM Moldenke

Additional bibliography: J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 669, 671, 672, 674, & 677-678. 1960; Moldenke, Phytologia 14: 508. 1967; Moldenke, Résumé Suppl. 15: 4. 1967; Hocking, Excerpt. Bot. A.12: 424. 1967; Moldenke, Biol. Abstr. 49: 1325. 1968; Moldenke, Fifth Summ. 1: 140 (1971) and 2: 860. 1971; Moldenke, Phytologia 31: 339 & 350. 1975.

Macbride (1960) comments that "Description of flowers apparently taken by Moldenke from the more oblong-leaved Ayacucho specimen. Leaves of Metcalf specimens suborbicular, scarcely 1 cm. long; fruit to 11 mm. long, 13 mm. wide, deep purple, very firm. Related to C. ilicifolium HBK., C. dentatum D. Don, C. punctatum Greem.....the type a shrub to 2 meters tall. I had referred my collection (the type) to the shrub of HBK., that perhaps, at least typically, only in Ecuador; it is the earliest name among these similar shrubs, if they are not specifically distinct; the Metcalf specimen is toward C. punctatum. Both Asplund 11496 and Mathews 1021 were referred here by Moldenke but localities were not given by him." He cites only Macbride 3090 from Junín, Weberbauer 5565 from Ayacucho, and Metcalf 30464 from Puno, Peru.

CITHAREXYLUM PACHYPHYLLUM var. CANESCENS Moldenke

Additional bibliography: Moldenke, Phytologia 14: 508-509. 1967; Moldenke, Résumé Suppl. 15: 4. 1967; Hocking, Excerpt. Bot. A.12: 424. 1967; Moldenke, Biol. Abstr. 49: 1325. 1968; Moldenke, Fifth Summ. 1: 140 (1971) and 2: 860. 1971.

CITHAREXYLUM PENTANDRUM Vent.

Additional & emended bibliography: Desf., Tabl. Écol. Bot., ed. 1, 54. 1804; Willd., Enum. Pl. Hort. Berol. 2: 649—650. 1809; Desf., Tabl. Écol. Bot., ed. 2, 65. 1815; Pers., Sp. Pl. 3: 357. 1819; Bocq., Adansonia, ser. 1, 2: 88, 123, & 130 (1862) and 3: 223. 1863; Kuntze, Rev. Gen. Pl. 2: 504. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 550 (1893), imp. 2, 1: 550 (1946), and imp. 3, 1: 550. 1960; Moldenke, Phytologia 14: 509. 1967; Moldenke, Fifth Summ. 1: 100, 102, 104, 357, 428, 430—437, & 453 (1971) and 2: 860. 1971; A. L. Moldenke, Phytologia 23: 318. 1972; Little, Woodbury, & Wadsworth, Trees P. R. & Virg. Isls. 2 [U. S. Dept. Agr. Agric. Handb. 449]: 990 & 1000. 1974; Moldenke, Phytologia 31: 459. 1975.

Desfontaines (1804, 1815) lists the French vernacular names, "bois-guitare à 5 étamines" and "bois-guitare à 5 étamines", for this species.

Kuntze (1891) was of the opinion that C. pentandrum is identical with what he called C. villosum var. integerimum [now known as C. integerimum (Kuntze) Moldenke]. He says: "C. villosum Jacq. var. integerimum O. Ktze. Costa Rica. Diese Art, wozu auch C. pentandrum Vent. gehören dürfte, ist durch die kurz behaarte Inflorescenz mit subsessilen Blüthen, trichterigen kurzgezähnten Kelchen, sehr kurz Corollen, deren Röhre den Kelch kaum übertragt, schwach behaarte lanzettliche (1: 2 1/2 — 5) nicht lederige Blätter ausgezeichnet; die Blättern ändern etwas gezähnt bis ganzrandig." Little and his associates regard it as a synonym of C. fruticosum (but surely not of the typical glabrous leathery leaves typical form of this species!).

CITHAREXYLUM PERKINSI Moldenke

Additional bibliography: Moldenke, Phytologia 14: 509. 1967; Moldenke, Fifth Summ. 1: 100, 104, 432, 435, & 436 (1971) and 2: 860. 1971; A. L. Moldenke, Phytologia 23: 318. 1972; Little, Woodbury, & Wadsworth, Trees P. R. & Virg. Isls. 2 [U. S. Dept. Agr. Agric. Handb. 449]: 858 & 1000. 1974; Moldenke, Phytologia 31: 346. 1975.

Wagner describes this plant as a woody shrub, 10 feet tall, the leaves leathery and shiny, and the fruit (in October) green and reddish, shiny, and hard.

Additional citations: PUERTO RICO: R. J. Wagner 1259 (Ws).

CITHAREXYLUM PERNAMBUCENSE Moldenke

Additional bibliography: Moldenke, Phytologia 6: 497—498. 1959; Moldenke, Fifth Summ. 1: 148 (1971) and 2: 860. 1971.

CITHAREXYLUM POEPPIGII Walp.

Additional synonymy: Citharexylon poeppigii Walp., Repert. Bot. Syst. 4: 76. 1845. Cytarexylum poeppigii Cuatrecasas, Revist. Acad. Colomb. Cienc. 10: 235. 1958. Citharexylon poeppigi Walp. ex Cain, Man. Veg. Anal., imp. 1, 242. 1959. Citharexylum

poeppiggi Walp. ex Moldenke, Résumé Suppl. 18: 9, in syn. 1969.
Citharexylum poeppigii Walp. & Moldenke ex Lasser, Braun, & Steyer-
 erm., Act. Bot. Venez. 9: 36, sphalm. 1974. Citharexylum poeppigii
 Walp. ex López-Palacios, Revist. Fac. Farm. Univ. Los Andes 15:
 17, sphalm. 1975.

Additional & emended bibliography: Walp., Repert. Bot. Syst. 4:
 76. 1856; Bocq., Adansonia, ser. 1, 3: [Rev. Verbénac.] 223. 1863;
 Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 550. 1893; T.
 Peckolt, Bericht. Deutsch. Pharm. Gesell. 14: 475. 1904; Jacks. in
 Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 550. 1946; Cuatrecasas,
 Revist. Acad. Colomb. Cienc. 10: 235. 1958; R. C. Foster, Contrib.
 Gray Herb. 184: 169. 1958; Cain, Man. Veg. Anal., imp. 1, 242.
 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 550. 1960;
 J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 668, 670, & 678—679.
 1960; Hocking, Excerpt. Bot. A.7: 454. 1964; Moldenke, Phytologia
 14: 509. 1967; Moldenke, Résumé Suppl. 15: 4 (1967) and 18: 9.
 1969; Cain, Man. Veg. Anal., imp. 2, 242. 1971; Dwyer, Raymondiana
 4: 70. 1971; Moldenke, Fifth Summ. 1: 115, 122, 135, 140, 148, 181,
 430, 433, 435, 474, & 488 (1971) and 2: 860. 1971; Moldenke, Phy-
 tologia 25: 228, 229, & 236 (1973) and 28: 435, 436, 448, & 454.
 1974; Lasser, Braun, & Steyer-erm., Act. Bot. Venez. 9: 36. 1974;
 López-Palacios, Revist. Fac. Farm. Univ. Los Andes 14: 21 (1974)
 and 15: 18—20, [23], & 24. 1975; Moldenke, Phytologia 31: 358,
 381, & 394. 1975.

Recent collectors describe this plant as a large spreading tree,
 5—25 m. tall, the trunk 12—25 cm. in diameter at breast height,
 the leaves opposite and ternate, bright-green above, lighter be-
 neath, the petioles with prominent glands, the racemes arching,
 the flowers fragrant or very fragrant, the calyx green, and the
 fruit orange, turning red or deep bright-red when ripe, bitter,
 eaten by fruit-bats. The corollas are described as having been
 "white" on López-Palacios & al. 3180, Soejarto & al. 1225, and
 Uribe 4049 or as "lemon-yellow" on Barclay, Juajibioy, & Gama
 3626, while on Barclay, Juajibioy, & Gama 3637 they are described
 as "corolla-tube pale-green at base, cream above, filaments and
 anthers pale".

The species has been found growing in pastures, wet wooded areas,
 and in wooded areas near low hills, at altitudes of 180—900 meters,
 flowering in April and June to August, fruiting in July, August,
 and October. Additional vernacular names reported for it are
 "comida de pavo", "oreja de burro", "oreja de mula", "totumo", and
 "yuaco".

Uribe reports the species as "es común y de madera apreciada";
 Lasser and his associates (1974) found it in cultivation in Venez-
 uela. Cain (1959) asserts that this tree is not emergent over
Ceiba pentandra and Mauritia flexuosa where they grow together on
 Arapari Island. He refers to it as a phanerophyte on varzea land.

Peckolt (1904) records a "Baum in den Staaten Amazonas und Pará
 Taromán benannt" and identifies it as "Citharexylon cinereum L.",
 but probably this is a misapplication of that binomial to C. poep-

pigii or some other Amazonian species of the genus. He describes the plant as having a "Steinfrucht mit saftigem Exokarp, wird von den Kautschuksammlern genossen".

López-Palacios and his associates describe C. poeppigii as an "Árbol erecto, inerme, 8--12 m. Tronco corto, 35 cm. de diámetro. Copa expansa, densa, 6—7 m. de diámetro. Hojas 3-vérticiladas. Pedúnculos 3—5 cm., las adultas caedizas y rojo amarillentas; racimos arqueados; flores ligeramente pediceladas; ramas color castaño. Corola blanca o blanca cremósula. Drupas inmaduras rojo pálidas. Planta muy ornamental durante la fructificación".

In a letter to me, dated July 2, 1973, López-Palacios says: "Del material que le envío hoy 3156 corresponde exactamente a 2928 y 3157 corresponde exactamente a 2924. Pero sinceramente no creo que estas plantas sean la una variedad de la otra. Yo las considero especies diferentes por las siguientes razones: 3156 (C. poeppigii Walp.) - Árbol mediano, 6—10 m.; Tallos jóvenes castaños; Hojas caducas, las adultas amarillo rojizas; Inflorescencias multifloras; Flores pedunculadas; Corola de tubo largo y estrecho; Fruto maduro rojo, ápice obtuso. 3157 (Citharexylum sp.) - Árbol más alto, 12—15 m.; Tallos jóvenes verde oscuro; Hojas siempre verdes (perennes?); Inflorescencias paucifloras; Flores sésiles; Corola de tubo corto y ancho; Fruto maduro verde amarillente, ápice apiculado. Ignore si 3157 pueda ser nuevo o pertenecer a C. venezuelense Moldenke, porque no conozco material típico de esta último taxón; pero si 3056 es C. poeppigii, con absoluta seguridad no se trata de una variedad sino de dos especies diferentes." I am regarding 3157 as C. poeppigii and 2928 & 3156 as C. venezuelense.

Dwyer (1971) cites Woytkowski 7116 from San Martín, Peru, while Macbride (1960) cites Klug 3943, Poeppig 2219, Schunke 365, Tessmann 3491, and Williams 261, 413, 7183, & 8030 from Loreto, Peru.

Material of typical C. poeppigii has been misidentified and distributed in some herbaria as C. poeppigii f. anomalum Moldenke. On the other hand, the Murça Pires 51847, distributed as C. poeppigii, is actually C. macrophyllum Poir.

Additional citations: COLOMBIA: Boyacá: Uribe Uribe 4049 (N). Méta: Barclay, Juajibioy, & Gama 3626 (W-2702419), 3637 (W-2702427); García-Barriga, Hashimoto, & Ishikawa 18505 (N); Philipson, Idrobo, & Fernández 1380 (N); Flownan, Davis, & Jacobs 4278 (Ld). Putumayo: Soejarto, Vogelmann, Olday, & Hernández 1225 (Oa). VENEZUELA: Barinas: Veillon 78 (W-2654208). Bolívar: Ruiz-Terán & López-Palacios 11155 (Ld). Mérida: López-Palacios & Bautista 3180 (Ld). Táchira: López-Palacios 3157 (Ld); Steyermark & Rabe 86629 (N).

CITHAREXYLUM POEPPIGII f. ANOMALUM Moldenke

This taxon is now regarded as synonymous with C. venezuelense Moldenke, which see.

CITHAREXYLUM POEPPIGII var. CALVESCENS Moldenke

Additional bibliography: Moldenke, Phytologia 13: 302. 1966; Moldenke, Fifth Summ. 1: 115 (1971) and 2: 860. 1971; Moldenke, Phytologia 25: 228. 1973.

López-Palacios describes this plant (on the basis of his no. 2924) as an "Árbol de unos 12 m., con ramaificación a partir de los 3 m. Hojas opuestas con 2 o más glándulas en la base del limbo, cartáceas en los brotos jóvenes y con pecíolo hasta 15 mm., limbos hasta do 27 x 13 cm. en la parte más ancha; en las ramas adultas son coriáceas y mucho menores (16 x 7 cm.), glabras por la haz (a excepción de la nervadura), piloso-velutinosas por el envés. Frutos sésiles, obovoides ca. de 1.5 cm. de diámetro, de color verde cuando jóvenes, amarillo verduzco cuando maduros y marrón cuando secos, nunca rojos". He found it growing at 180 m. altitude, in fruit in October. The very large fruit may possibly indicate a new variety for this plant, especially since the collector asserts that the mature leaves are like those of typical C. poeppigii. In fact he says that the plant represented by this number (2924) is identical in all respects to his no. 3157 which I have determined as typical C. poeppigii.

Additional citations: VENEZUELA: Barinas: López-Palacios 2924 (2).

CITHAREXYLUM POEPPIGII var. MARGARITACEUM Poepp. & Moldenke

Additional synonymy: Citharexylum poeppigii var. margaritaceum "Poepp. ex Moldenke" apud J. F. Macbride, Field Mus. Publ. Bot. 13 (5): 678. 1960.

Additional bibliography: R. C. Foster, Contrib. Gray Herb. 184: 169. 1958; J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 668, 670, & 678-679. 1960; Moldenke, Phytologia 14: 509. 1967; Moldenke, Fifth Summ. 1: 115, 135, 140, 148, 181, 434, & 435 (1971) and 2: 860. 1971.

Recent collectors have encountered this plant at 590 m. altitude, in fruit in September.

Macbride (1960) asserts that the "authority of [the] variety [was] published incorrectly, as Poeppig and Moldenke". However, the taxon was first recognized as distinct by Poeppig and he proposed the epithet "margaritaceum" for it on herbarium specimen labels, but then died before he had formally validated the name by formal publication. I later validated it by publication and by supplying a description in Latin as was required by the International Botanical Code at that time. According to the very much respected taxonomic botanist, H. A. Gleason, at that time Head Curator of the New York Botanical Garden and my superior and mentor, this situation justifies the linkage of the surname of the original author of the epithet with the surname of the validator. This I did and this is the policy which he also consistently followed in his lifetime of publications on the Melastomaceae and other groups of chiefly tropical South American plants.

Additional citations: COLOMBIA: Méta: García-Barriga, Hashimoto, & Ishikawa 18505 (W-2569312A).

CITHAREXYLUM PTEROCLADUM Donn. Sm.

Additional bibliography: Moldenke, Phytologia 13: 303. 1966; Gibson, Fieldiana Bot. 24 (9): 184 & 190-191. 1970; Moldenke, Fifth Summ. 1: 68, 78, 81, & 435 (1971) and 2: 860. 1971; Moldenke, Phytologia 23: 415 (1972) and 31: 337. 1975.

Recent collectors describe this species as a small tree or shrub, 7-17 m. tall, the trunk to 30 cm. in diameter at breast height, and the fruit red-pink or orange. They have found it growing in chaparral, acahualli, high evergreen woods, and rain-forests, on hilltops, and in deep black sandy soil with primary vegetation, at 20-1560 m. altitude, fruiting in February, April to June, and November. Martínez-Calderón refers to it as "abundant" in Veracruz, Mexico. The corollas are said to have been "blue" on Hinton 12631 & 13738. Contreras 6916 was annotated by someone, perhaps the collector, in the Austin herbarium as "n. sp.?"

Gibson (1970) comments that the species is "Closely related to the Mexican C. affine D. Don. Moldenke separates the two by such tenuous characters as whether the branches are 'always alate' or 'sometimes alate' and the leaf blades 'glanduliferous at the base' or 'usually not glanduliferous at the base'. The only constant difference is the smaller size of the flowers of C. affine, in which the corolla tube is only ca. 4 mm. long with lobes 2-3 mm. long [in C. pterocladium the tube is 5-6 mm. long and the lobes 4-5 mm. long]. Because they are so much alike in every other respect, the flowers of both were examined for heterostyly but in both the stigma at anthesis is just a little below the anthers."

Additional citations: MEXICO: Chiapas: F. Miranda 7734 bis (W-2508420). Michoacán: Hinton 12631 (Se-187215, Tu-98520), 13738 (Se-187218, Tu-112056), 13739 (Se-187239, Tu-112055). Veracruz: Calzada 284 (Ld), 355 (Ft); Martínez-Calderón 2202 [Rec. Inf. D004802] (Mi, Z); Sousa 3086 (Mi). GUATEMALA: El Petén: Contreras 6916 (Au-278537, Ld, Ld, Ld), s.n. [May 1967] (Ld).

CITHAREXYLUM PUNCTATUM Greene.

Additional bibliography: R. C. Foster, Contrib. Gray Herb. 184: 169. 1958; J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 669, 670, 678, & 679. 1960; Moldenke, Phytologia 14: 509. 1967; Moldenke, Fifth Summ. 1: 140, 181, 382, & 435 (1971) and 2: 860. 1971; Troncoso, Darwiniana 18: 373, 375, & 408. 1974.

Ugent encountered this plant on a rocky slope with Solanum brevicaule, S. capsicibaccatum, S. acaule, Oenothera, Lupinus, Chenopodium, Salvia, Oxalis, Calceolaria, and non-tuberous Solanum spp., at 3800 m. altitude, in fruit in April. Macbride (1960) says of it: "Distributed as C. ilicifolium HBK.; differs in smaller entirely glabrous leaves, not spinose-dentate; the striking impressed punctuation is diagnostic.....; a gnarled shrub, to 2 meters tall, of high (3,300-3,800 meters) altitude." He cites

only Weberbauer 935 from Puno, Peru, asserting that the species is also found in Bolivia.

Additional citations: BOLIVIA: Cochabamba: Ugent 4750 (Ws).

CITHAREXYLUM QUERCIFOLIUM Hayek

Additional bibliography: J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 668, 670, & 679-680. 1960; Moldenke, Phytologia 14: 510. 1967; Moldenke, Fifth Summ. 1: 140 & 430 (1971) and 2: 769 & 860. 1971.

Macbride (1960) comments: "Outstanding in the large coriaceous spiny serrate leaves.....; seems probably [to be] an extreme variant of C. reticulatum HBK." He cites only Weberbauer 4248 from Cajamarca, Peru.

CITHAREXYLUM QUITENSE Spreng.

Emended synonymy: Citharexylum molle H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 208-209. 1817 [not C. molle Jacq., 1804. nor Salisb., 1796]. Citharexylon quitense Spreng. in L., Syst. Veg., ed. 16, 2: 763. 1825.

Additional & emended bibliography: H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 208-209 (1817) and ed. quarto, 2: 257-258. 1818; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 550. 1893; Barnhart, Bull. Torrey Bot. Club 29: 590. 1902; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 550. 1946; Anon., Commonw. Mycol. Inst. Ind. Fungi Petrak Cum. Ind. 2: 279. 1957; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 550. 1960; J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 673. 1960; Moldenke, Phytologia 13: 303-304. 1966; Moldenke, Fifth Summ. 1: 135, 430, & 434 (1971) and 2: 860. 1971; Moldenke, Phytologia 31: 347. 1975.

Recent collectors describe this plant as a tall shrub, about 3 m. tall, the buds rather dark-yellow, the corollas yellowish-white, and have encountered it in thickets, flowering in January and fruiting in February and March.

The H.B.K. references cited in the synonymy and bibliography above were authenticated by the late Dr. J. H. Barnhart (1902).

Additional citations: ECUADOR: El Oro: Asplund 15682 (N). Guayaquil: Asplund 15233 (N, W-2652448), 15323 (N).

CITHAREXYLUM RACEMOSUM Sessé & Moc.

Additional bibliography: Moldenke, Phytologia 13: 304. 1966; Moldenke, Fifth Summ. 1: 68 & 474 (1971) and 2: 860. 1971.

Smith and his associates refer to this plant as a shrub, 2.5 m. tall, with orange-red "berries" [actually they are drupes], and encountered it in gravelly gray or brown soil in the thorn-scrub-cactus formation, at 1000 m. altitude, fruiting in July.

Additional citations: MEXICO: Puebla: Smith, Peterson, & Tejeda 4121 (N).

CITHAREXYLUM RECURVATUM Greene.

Additional & emended bibliography: Prain, Ind. Kew. Suppl. 4, imp. 1, 49 (1913) and imp. 2, 49. 1958; Moldenke, Phytologia 9: 11-

12. 1959; Moldenke, Fifth Summ. 1: 87, 90, 357, & 437 (1971) and 2: 860. 1971; Moldenke in Woodson, Schery, & al., Ann. Mo. Bot. Gard. 60: 93, 99, & 145. 1973; Moldenke, Phytologia 31: 351 & 352. 1975.

Recent collectors describe this species as a tree, to 50 feet tall, with shiny, orange-colored fruits in July.

The P. H. Allen 4730, M. E. Davidson 899, P. White 214, and Woodson, Allen, & Seibert 870, distributed as C. recurvatum and previously so cited by me in previous installments of this series of notes, are all actually C. donnell-smithii Greenm., while P. White 223 is C. viride Moldenke.

Additional citations: PANAMA: Chiriquí: Blum & Dwyer 2577 (E-1340171).

CITHAREXYLUM REITZII Moldenke

This taxon is now known as Verbenoxylum reitzii (Moldenke) Troncoso.

CITHAREXYLUM RETICULATUM H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 208. 1817 [not C. reticulatum Cham., 1909, nor Donn. Sm., 1907].

Additional & emended bibliography: H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 208 (1817) and ed. quarto, 2: 257. 1818; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 550 & 823. 1893; Barnhart, Bull. Torrey Bot. Club 29: 590. 1902; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 550 & 823. 1946; Douin, Ann. Univ. Lyon, ser. 3, C.8: 82. 1954; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 550 & 823. 1960; J. F. Macbr., Field Mus. Publ. Not. 13 (5): 669, 670, 677, & 680. 1960; Moldenke, Phytologia 13: 304. 1966; Hocking, Excerpt. Bot. A.11: 504. 1967; Moldenke, Biol. Abstr. 49: 4199. 1968; Moldenke, Fifth Summ. 1: 135, 140, 357, 430, & 436 (1971) and 2: 491, 766, 768, & 860. 1971; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 15: 19. 1975; Moldenke, Phytologia 31: 381. 1975.

It should be noted here that the H.B.K. corrected dates cited above have been authenticated by Barnhart (1902).

Macbride (1960) cites Weberbauer 6604 from Junín and Ferreyra 10426 from Lima, Peru. However, I regard the Weberbauer collection as representing C. laurifolium Hayek. Douin (1954) records C. reticulatum as cultivated in France.

The López-Palacios collection cited below is placed here tentatively. It is sterile and its leaves are much larger and differently shaped than those of Ferreyra 10426, previously cited as representing this species. López-Palacios describes his plant as an "arbolito bajo de unos 3 m. Hojas de envés glabro, excepto en la nervadura. Areolas punteadas."

The Greenman & Greenman 5227, distributed as C. reticulatum, is actually Aegiphila panamensis Moldenke.

Additional citations: COLOMBIA: Antioquia: López-Palacios 3588 (Z).

CITHAREXYLUM RETIFORME Engelhardt

Additional bibliography: Moldenke, Phytologia 7: 15. 1959; Moldenke, Fifth Summ. 1: 375 & 430 (1971) and 2: 860. 1971.

CITHAREXYLUM RIGIDUM (Briq.) Moldenke

Additional & emended bibliography: Briq. in Chod. & Hassl., Bull. Herb. Boiss., ser. 2, 4: 1166. 1904; Briq. in Chod. & Hassl., Pl. Hassler. 2: 502. 1904; Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 571. 1941; Moldenke, Phytologia 13: 310. 1966; Moldenke, Fifth Summ. 1: 148, 185, 434, & 436 (1971) and 2: 860. 1971.

CITHAREXYLUM RIMBACHII Moldenke

Additional bibliography: Moldenke, Phytologia 7: 17-18. 1959; Moldenke, Fifth Summ. 1: 135 (1971) and 2: 860. 1971.

CITHAREXYLUM ROSEI Greerm.

Additional bibliography: Prain, Ind. Kew. Suppl. 4, imp. 1, 49 (1913) and imp. 2, 49. 1958; Moldenke, Phytologia 13: 310--311. 1966; Moldenke, Fifth Summ. 1: 68, 357, & 436 (1971) and 2: 617 & 860. 1971.

Recent collectors describe this plant as a shrub, 2--2.5 m. tall, and have encountered it in "ladera roilitica con vegetación de matorral xerófilo", at 1700 meters altitude, flowering in June. The corollas are said to have been "whitish" on J. Rzedowski 10720, a collection exhibiting remarkably narrow leaves for this taxon.

The J. Rzedowski 24607, distributed as C. rosei, is actually var. pilosum Moldenke.

Additional citations: MEXICO: Guanajuato: H. H. Rusby 43 (W--2676521). San Luis Potosí: J. Rzedowski 10720 (Ip, Mi), 10740 (Ip, Mi, Ws). Zacatecas: R. McVaugh 17670 (Ip).

CITHAREXYLUM ROSEI var. DURANGENSE Moldenke

Additional bibliography: Moldenke, Phytologia 13: 311. 1966; Moldenke, Fifth Summ. 1: 68, 357, & 436 (1971) and 2: 617 & 860. 1971.

CITHAREXYLUM ROSEI var. PILOSUM Moldenke

Additional bibliography: Moldenke, Phytologia 13: 311--312. 1966; Moldenke, Fifth Summ. 1: 68 (1971) and 2: 860. 1971.

Rzedowski describes this plant as a shrub, 1.5 m. tall, and found it growing on "ladera caliza" with low matorral vegetation of Karwinskia and Condalia, flowering in September. The corollas are said to have been "white" on J. Rzedowski 24607.

Additional citations: MEXICO: Jalisco: R. McVaugh 17152 (N-type). San Luis Potosí: J. Rzedowski 24607 (Ip, Mi).

CITHAREXYLUM ROXANAE Moldenke

Additional bibliography: Moldenke, Phytologia 13: 312. 1966;

G. Taylor, Ind. Kew. Suppl. 14: 34. 1970; Moldenke, Fifth Summ.
1: 68 (1971) and 2: 860. 1971.

Collectors describe this plant and its habitat as follows: (1) shrub with many slender branches fanning out from the base, about 1.5--2 m. tall and 2 m. broad, the falling leaves turning reddish, the fruits maturing through brick-red to almost black, growing with low Alternanthera, Mimosa purpurascens, Jatropha vernicosa, Euphorbia, and Aralia scopulorum on steep north-facing slope near crest of ridge, on the south side of Valle de Los Encinos (south side of Cerro Giganta), Sierra de la Giganta, altitude about 1050 m., lat. ca. $26^{\circ}3.5' N.$, long. $111^{\circ}34' W.$; (2) virgately branched, striate stems up to 2 m. long, the flowers dried up, apparently did not set fruit, near spring, with scattered Ficus palmeri, Celtis reticulata, Quercus tuberculata, Erythrina flabelliformis, Mimosa purpurascens, Bursera microphylla, Lophocereus schottii, Lemaireocereus thurberi, Hyptis emoryi, and Aloysia barbata on north-facing canyon and ridge, south side of Valle de Los Encinos (south side of Cerro Giganta), Sierra de la Giganta, alt. about 780--900 m.; (3) shrub 3 m. tall with many slender broom-like branches terminating main erect stems, growing with Pachycormus, Franseria arborescens, Jatropha vernicosa, and Schaefferia on steep talus on north-facing slope, peak south of Portezuelo de Peloteado (southwest of Notr \acute{f}), Sierra de la Giganta, altitude about 950--1200 m., ca. lat. $25^{\circ}49' N.$ long. $111^{\circ}23' W.$ -- at the Portezuelo de Peloteado (or de la Victoria), altitude about 800 m., the rugged eastern escarpment of the sierra drops abruptly to the Gulf; to the west the sierra slopes gently to the Arroyo de Santo Domingo drainage. The dominant vegetation of the "portezuelo" is low Jatropha cuneata, with scattered Lemaireocereus thurberi and Machaerocereus gummosus. The peaks to the north and to the south rise to 1200 meters or more. On steep north- and northeast-facing slopes at the base of cliffs are Mimosa purpurascens, Lysiloma divaricata, Amyris, Jatropha vernicosa, Bernardia, Pachycormus, Karwinskyia, Alvordia, Franseria arborescens, and occasional Erythea brandegeei and Quercus tuberculata; (4) spreading broom-like shrub, about 1.5 m. tall, the branches in 3's, flowers creamy-white, salverform, pubescent within, growing in steeper slopes, only a few shrubs seen, on gentle north-facing slopes of Cerro Gabilán, south of Portezuelo de Gabilán, altitude about 870 meters, Sierra de la Giganta, ca. lat. $25^{\circ}50\frac{3}{4}' N.$, long. $111^{\circ}25' W.$; Portezuelo de Gabilán (altitude about 720 m.) lies between Cerro Gabilán to the south and Cerro Tecombó to the north; the ascent from the west via Arroyo de los Dolores is gradual. To the east there is a precipitous drop into Cañon Gabilán. The sparse vegetation cover of the Portezuelo is comprised of Cercidium praecox, Opuntia cholla, and Machaerocereus gummosus, as well as scattered Lemaireocereus thurberi, Pachycereus, and 3 species of Bursera; the north-facing slopes of Cerro Gabilán first ascend gradually and then are broken by vertical cliffs; on

these slopes one finds Fouquieria diguetii, Mimosa pururascens, Lysiloma candida (L. divaricata at the higher elevations), Bursera, Jatropha cuneata, J. vernicosa, Pachycormus discolor, Cordia brevispicata, and Alvordia glomerata.

Moran refers to this obviously very rare and local species as a shrub, 4 m. tall, and encountered it at 1400 meters altitude.

Additional citations: MEXICO: Baja California: A. Carter 4123 (Au-271010, Mi, W-2539496), 4385 (Mi, N), 5083 (Au-271008, Mi, W-2539497); Carter & Ferris 4000 (W-2539495-isotype); Carter & Leal 4682 (N, W-2539498, Ws); R. V. Moran 11725 (Sd-59507).

CITHAREXYLUM SCABRUM Sessé & Moc.

Additional bibliography: Moldenke, Phytologia 13: 312. 1966; Moldenke, Fifth Summ. 1: 68, 429, 430, 432, 433, 436, & 474 (1971) and 2: 860. 1971.

CITHAREXYLUM SCHOTTII Greenm.

Additional synonymy: Citherexylum schottii Greenm. apud Roys, Ethno-bot. Maya 284 & 319, sphalm. 1931.

Additional bibliography: Prain, Ind. Kew. Suppl. 4, imp. 1, 49. 1913; Roys, Ethno-bot. Maya [Tulane Univ. Mid. Am. Res. Ser. Publ. 2:] 249, 284, & 319. 1931; Prain, Ind. Kew. Suppl. 4, imp. 2, 49. 1958; Moldenke, Phytologia 13: 312. 1966; Moldenke, Fifth Summ. 1: 68, 87, 357, 430, 435, & 438 (1971) and 2: 860. 1971; Anon., Biol. Abstr. 56 (2): B. A. S. I. C. S. 52. 1973; Moldenke, Biol. Abstr. 56: 653. 1973; Moldenke, Phytologia 25: 368. 1973; Hocking, Excerpt. Bot. A.23: 293. 1974.

The Lundells report finding this plant growing "in a dooryard", but whether wild or cultivated is not specified. The corollas are said to have been "pale-green" on Lundell & Lundell 7878.

Roys (1931) records two Mayan names for this plant and describes the native uses as follows: "'Tatak-che'....[literally, clinging tree or that which clings to a tree]....This vine....is cooling. It is the ivy of Castile which winds about a tree; it pulls down a wall and disintegrates it. The Indian women employ the word tatakche to call to their husbands not to leave them, and it is a more decent expression than another one which they are accustomed to use. With it they cure sores, even though they are chronic, and it is necessary to learn the method of treatment, because it brings forth humors." This description is difficult to reconcile with that of C. schottii, which is said to be a shrub or tree [Standl., p. 1241]. The description quoted above is taken originally from "Yeras y Hechicerias del Yucatán" f. 357r.

For "ixim-che" Roys (1931) says "A certain plant or shrub.... This tree, iximche, is moderately cooling. It is thus named, which means maize-tree, because it bears a fruit like maize. With it they cure a dangerous swelling called "chacmulahkak in this land.....Dr. Standley reports that the U. S. National Herbarium has two plants from British Honduras accompanied by the name,

ixim-che. One is C[asearia] nitida, and the other is Andira inermis, H.B.K. Neither particularly resembles maize, but the former is a shrub or small tree. The Maya texts give ic-che as a synonym and prescribe an infusion of the young leaves taken internally, or a decoction of them as a bath to cure asthma and coughs.... The crushed leaves are also taken for cramps.... The crushed root is applied externally for syphilitic sores....., erysipelas..... and the dangerous swelling mentioned above.... One text refers to the red part of the plant." Roys seems to think that Citharexylum schottii is the plant referred to here, but how it bears any resemblance to maize or could be called a vine is not clear to me.

Additional citations: MEXICO: Yucatán: Enriquez 711 (W-2597476), 737 (W-2597478); Gaumer 765 (Tu-124702); Lundell & Lundell 7878 (N, Ws).

CITHAREXYLUM SCHOTTII var. **PUBESCENS** Moldenke, Phytologia 25: 368. 1973.

Bibliography: Anon., Biol. Abstr. 56 (2): B.A.S.I.C. S.52. 1973; Moldenke, Biol. Abstr. 56: 653. 1973; Moldenke, Phytologia 25: 368. 1973; Hocking, Excerpt. Bot. A.23: 293. 1974.

This variety differs from the typical form of the species in having its branchlets, peduncles, pedicels, flowering calyces, petioles, and lower leaf-surfaces uniformly short-pubescent.

Citations: GUATEMALA: Sacatepéquez: Webster, Adams, Miller, & Miller 11813 (Mi-type, Z-isotype).

CITHAREXYLUM SCHULZII Urb. & Ekm.

Additional & emended bibliography: A. W. Hill, Ind. Kew. Suppl. 8: 53. 1933; Fedde & Schust. in Just, Bot. Jahresber. 57 (2): 401. 1938; Moldenke, Phytologia 13: 312. 1966; Moldenke, Fifth Summ. 1: 102 (1971) and 2: 860. 1971.

Liogier describes this plant as a low shrub, 0.5—1.5 m. tall, much branched, the branches spreading, the flowers white and fragrant, and the fruits red or red-orange. He encountered it in pine barrens, pine forests on limestone and bauxite, and among limestone rocks at the edges of cliffs or in exposed positions near the rim of gorges, at altitudes of 1000—1300 meters, flowering in February, and fruiting in February and July. Liogier 14126 is accompanied by a color photograph in the Britton Herbarium.

Additional citations: HISPANIOLA: Dominican Republic: A. E. Liogier 13661 (N, Z), 13799 (Ld, N), 14126 (Ac, N), 17893 (N, W-2649065); Liogier & Liogier 19649 (N); Marcano s.n. [Herb. Jiménez 5267] (Ac, N, W).

CITHAREXYLUM SESSAEI D. Don

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 550 (1893) and imp. 2, 1: 550. 1946; Metcalfe & Chalk, Anat. Dicot. 1032. 1950; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 550. 1960; Moldenke, Phytologia 14: 510. 1967; El-Gazzar & Wats., New Phytol. 69: 483 & 485. 1970.

[to be continued]